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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,418

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Takeshi Okubo

2005-1532A

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WENDEROTH, LIND & PONACK, L.L.P.  
2033 K STREET N. W.  
SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER

GEDEON, BRIAN T

ART UNIT

PAPER NUMBER

3766

MAIL DATE

DELIVERY MODE

11/21/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/552,418

Applicant(s)

OKUBO ET AL.

Examiner

Brian T. Gedeon

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3766

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 20-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is in response to the amendment after non-final filed 30 August 2007.

### ***Specification***

2. The Examiner acknowledges and accepts the amendment made to the specification to overcome an objection for grammatical informalities. The objection made against the specification is withdrawn.

### ***Claim Objections***

3. The Examiner withdraws the objection made to claims 1-9 in view of the claim cancellation and amendments.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 20, 22, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Antaki et al. (US Patent no. 6,015,272).

In regard to claim 20, Antaki et al. describe a rotary fluid pump with a magnetically suspended impeller for use as a ventricular assist in pumping blood, col 1

lines 25-27. The pump includes a housing 324 (see figure 34 and column 17 line 53 – column 18 line 15); an axial body fixed in said housing 320; an impeller 322 arranged so as to be rotatable around said axial body, said axial body extending through said impeller; a driving mechanism 346 and 348 for rotating said impeller such that blood taken in from a front side of said impeller is force-fed to a rear side of said impeller along an axial direction of said impeller; a front-side fixed body connected to a front side of said axial body (fixed body 320 having front side 326); a rear-side fixed body connected to a rear side of said axial body (fixed body 320 having rear side 328) such that said axial body is sandwiched between said front-side fixed body and said rear-side fixed body; a straightening board 332 protruding from an inner wall of said housing at the front side of said impeller, said front-side fixed body being fixed at said straightening board; and a board-shaped diffuser 334 protruding from said inner wall of said housing at the rear side of said impeller 322, said rear-side fixed body being fixed at said board-shaped diffuser, wherein said impeller forms a sleeve and impeller wing-components 360 protruding from an outer peripheral surface of said sleeve, said sleeve being arranged such that an inner peripheral surface of said sleeve faces an outer peripheral surface of said axial body across a micro gap 364 and 327, a front-end surface of said sleeve faces a rear-end surface of said front-side fixed body across a micro gap 364 and 327, and such that a rear-end surface of said sleeve faces a front-end surface of said rear-side fixed body across a micro gap 364 and 327; wherein said driving mechanism 346 and 348 comprises polar anisotropic permanent magnets 329 and 331 installed

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in said sleeve and a rotary magnetic flux generator 346 and 348 installed in said housing so as to surround an outer peripheral portion of said impeller, and wherein said sleeve includes a first magnet arranged 331 to face said rear-end surface of said front-side fixed body, and said from-side fixed body includes a second magnet 329 arranged to face said front-end surface of said sleeve, said first and second magnets being arranged such that a pole of said first magnet faces a same pole of said second magnet so as to produce a repulsion force between said first magnet and said second magnet (this arrangement is depicted in figures 6 and 34).

In regard to claim 22, the magnets 329 and 331 are permanent magnets, col 17 lines 64-65.

In regard to claim 23, Antaki et al. teaches that it is known in the art that the permanent magnets can be ring shaped, col 2 lines 21-29.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Antaki et al. (US Patent no. 6,015,272) in view of Issacson et al. (US Patent no. 5,211,546).

In regard to claim 2, Antaki et al. substantially describe the invention as claimed except for the thrust grooves located surfaces of the fixed axial body. Issacson et al. in

a similar field of endeavor, shows thrust bearing grooves on a rotor of a blood pump, figures 12a-12g and 13a-13d. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the rotor of Antaki et al. with the thrust bearing grooves of Issacson in order to axially support the rotor in a hydrodynamic manner, Issacson col 17 lines 64 – col 18 line 5.

### ***Response to Arguments***

8. Applicant's arguments, see Remarks, filed 30 August 2007, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Antaki et al. (US Patent no. 6,015,272).

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Gedeon whose telephone number is (571) 272-3447. The examiner can normally be reached on M-F 8:30-5:00.

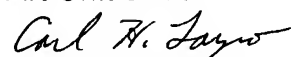
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl H. Layno can be reached on (571) 272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian T. Gedeon  
Patent Examiner  
Art Unit 3766

BTG

Carl H. Layno  
Supervisory Patent Examiner  
Art Unit 3766

  
CARL LAYNO  
PRIMARY EXAMINER